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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/052,234

01/16/2002

Duc Chau

40013.003

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12/08/2005

KENNETH E. HORTON
KIRTON & MCCONKLE
60 EAST SOUTH TEMPLE
SUITE 1800
SALT LAKE CITY, UT 84111

EXAMINER

GARCIA, JOANNIE A

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,234

Applicant(s)

CHAU ET AL.

Examiner

Joannie A. Garcia

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,4,6-17 and 22-24 is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al (U.S. Patent 5,508,534).

The rejection is maintained as stated in the Office Action mailed 04-20-05, and as stated below.

Applicant argues that Nakamura et al does not teach providing an isolation cap containing only a single layer of non-organic dielectric material. However, the claims are not so limited. Furthermore, Nakamura et al discloses providing an isolation cap 12 containing only a single layer of non-organic dielectric material (Figure 2, and Column 13, lines 15-19).

Nakamura et al discloses providing a semiconductor substrate 4 with an upper surface, the substrate having trench 13 therein (Figure 2, and Column 11, lines 33-38), providing a gate oxide layer 14 on a bottom and sidewall of the trench (Figure 2, and Column 11, lines 39-44), providing a conductive layer 5, such as polysilicon, on a bottom and sidewall of the gate oxide layer (Figure 2), the conductive layer having an upper surface below the upper surface of the substrate (Figure 2), providing a self-aligned isolation cap 12 on the conductive layer within the trench, a single layer of a non-organic dielectric material, such as silicon oxide (Figures 8 and 9, and Column 13, lines 23-32, and 50-67).

Claim 21 is rejected under 35 U.S.C. 102(b) as being anticipated by Nishihara (5,541,425).

The rejection is maintained as stated in the Office Action mailed 04-20-05, and as stated below.

Applicant argues that Nishihara does not teach providing a polysilicon layer having an upper surface below the upper surface of the substrate. However, Nishihara discloses providing a polysilicon layer 8 having an upper surface below the upper surface of substrate 3/5/6, as shown in Figure 3.

Nishihara discloses providing a semiconductor substrate 3/5/6 with an upper surface, the substrate having a trench therein (Figure 3), providing source and channel regions proximate the trench (Figure 3, Column 11, lines 5-8, Column 23, lines 42-44, and 55-58, and Column 24, lines 1-2), providing a gate oxide layer 7 on a bottom and sidewall of the trench (Figure 3), providing a conductive layer 8 on a bottom and sidewall of the gate oxide layer (Figure 3), the conductive layer having an upper surface below the upper surface of the substrate (Figure 3), providing a self-aligned isolation cap 9 on the conductive layer within the trench, the isolation cap comprising a non-organic dielectric material (Figure 3, and Column 10, lines 62-67).

Claims 3, 4, 6-17, and 22-24, are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after


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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joannie García whose telephone number is (571) 272-1861. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith, can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George Fourson
Primary Examiner
Art Unit 2823



JAG

December 5, 2005

GFourson
Primary Examiner